

815 KAR 20:073. Installation standards for water and waste piping material of types K, L, M and DWV copper; types R-K, R-L, R-DWV brass tubing and seamless stainless steel tubing, G or H.

RELATES TO: KRS 318.010, 318.130, 318.150

STATUTORY AUTHORITY: KRS 318.130

NECESSITY, FUNCTION, AND CONFORMITY: KRS 318.130 requires the office, through the State Plumbing Code Committee, to promulgate an administrative regulation establishing a State Plumbing Code. This administrative regulation establishes the standards for the proper installation of copper pipe and fittings for water and waste piping.

Section 1. The installation of copper, brass and seamless stainless steel tubing water and waste piping shall be made according to the procedures established in this administrative regulation to assure the satisfactory performance of the plumbing water distribution and drainage system.

Section 2. Cutting, Reaming and Sizing. (1) The tube shall be cut to exact length with a square cut using:

(a) A tube cutter;

(b) A hacksaw blade; or

(c) An abrasive saw.

(2) The tube shall have burrs and slivers removed by using a reamer or other appropriate tool.

(3) The tube shall be brought to true dimensions and roundness by using a sizing tool consisting of a plug and ring.

Section 3. Cleaning. The surface to be joined shall be clean and free from oil, grease and heavy oxides. The end of the tube shall be cleaned with a fine sand cloth or a special wire brush a distance slightly more than is required to enter the socket of the fitting.

Section 4. Jointing Techniques. (1) Soldered joints. In accordance with 815 KAR 20:060, the following procedures shall be used to solder a joint:

(a) After cleaning, the surfaces shall be covered with a thin film of mildly corrosive liquid or petroleum based pastes that contain chlorides of zinc and ammonium. Self-cleaning flux shall not be used in place of the cleaning pipe.

(b) Excess flux shall be wiped off within the fitting socket.

(c) The tube end shall be inserted into the socket, with the tube firmly seated against the end of the socket.

(d) Excess flux shall be removed with a rag.

(e) Heat shall be applied to the fitting and then moved in order to heat as large an area as possible. The fitting and joint shall:

1. Not be overheated; and

2. Be heated until the solder melts on contact with the pipe and flows by capillary attraction into the joint.

(f) The heat shall be removed.

(g) The fitting and joint shall be cooled before moving.

(2) Brazed joints. The following procedures shall be used for a brazed joint:

(a)1. Except as provided in subparagraph 2 of this paragraph, after cleaning, the surface of the tube end and the fitting socket shall be covered with a thin film of flux in accordance with the recommendations of the manufacturer of the brazing filler metal being used. Effort shall be made to avoid getting flux inside the tube.

2. Flux may be omitted if joining copper tube to wrought copper fittings with copper-phosphorus alloys (B-cup Series) which are self-fluxing on copper.

(b) The tube end shall be inserted into the socket hard against the stop and turn if possible.

(c) Heat shall be applied to the parts to be joined, with:

1. The tube heated first; and

2. The fitting at the base of the cup heated next.

(d) Brazing wire, rod or strip shall be applied at the point where the tube enters the socket of the fitting.

(e) The heat shall be removed.

(f) The fitting and joint shall be cooled.

(3) Flared joints; impact tools. The following procedures shall be used for a flared joint:

(a) The joints shall be cut, reamed, sized, and cleaned pursuant to Sections 2 and 3 of this administrative regulation.

(b) The coupling nut shall be slipped over the end of the tube.

(c) The flaring tool shall:

1. Be inserted into the tube end; and

2. Be driven by hammer strokes to expand the end of the tube to the desired flare.

(d) The fitting shall be placed squarely against the flare.

(e) The coupling nut shall be engaged with the fitting threads.

(f) The joint shall be tightened with two (2) wrenches, one (1) on the nut and one (1) on the fitting.

(4) Screw type flaring block.

(a) The procedures established in subsection (3)(a) and (b) of this section shall be followed for impact flaring.

(b) The tube shall be clamped in the flaring block so that the tube is slightly above the block.

(c) The yoke of the flaring tool shall be placed on the block so that the beveled end of the compression cone is over the tube end.

(d) The compressor screw shall be turned down firmly, forming the flare between the chamber in the flaring block and the beveled compressor cone.

(e) The flaring tool shall be removed and assembled pursuant to subsection (3)(d), (e), and (f) of this section.

(5) Mechanically formed tee connection.

(a) A mechanically-formed tee connection shall be approved for use in a domestic hot and cold water distribution system above ground only.

(b) A mechanically extracted collar shall be formed in a continuous operation consisting of drilling a pilot hole and drawing out the tube surface to form a collar having a height of not less than three (3) times the thickness of the tube wall. The collaring device shall be fully adjustable so to insure proper tolerance and complete uniformity of the joint.

(c) All joints shall be brazed in accordance with subsection (2) of this section and the manufacturer's instructions. A soldered joint shall not be permitted.

(6) Mechanical couplings. Types K and L copper tubing systems from two (2) inch through six (6) inch and used for water distribution may be installed using mechanical pipe couplings of a bolted type with a flush seal gasket along with grooved end copper fittings. Couplings shall be of the angle pad design to obtain rigidity.

Section 5. Hangers and Supports. Hangers, anchors and supports shall be of material of sufficient strength to support the piping and its contents. Hangers, anchors and supports shall be securely attached to the building construction at sufficiently close intervals to support the piping and its contents. Provisions shall be made to allow for expansion, contraction, structural settlement and vibra-

tions.

(1) Vertical piping.

(a) Copper tubing shall be supported:

1. At each story for piping one and one-half (1 1/2) inches and larger in diameter; and
2. At each story and not more than ten (10) foot intervals for piping one and one-quarter (1 1/4) inches and smaller in diameter.

(b) Supports shall be of copper material of sufficient strength which will not adversely react with the piping material.

(2) Horizontal piping.

(a) Copper tubing shall be supported at:

1. Six (6) foot intervals for one (1) inch and smaller in diameter; and
2. Ten (10) foot intervals for one and one-quarter (1 1/4) inch and larger.

(b) Supports shall be of copper material of sufficient strength which will not adversely react with the piping material. (9 Ky.R. 658; eff. 12-1-82; Am. 14 Ky.R. 1126; eff. 1-4-88; 17 Ky.R. 2886; 3107; eff. 5-3-91; 20 Ky.R. 1391; eff. 1-10-94; 26 Ky.R. 215; 615; eff. 9-16-99; TAm eff. 8-9-2007.)